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## Full Length Article

## Outsourcing to convert fixed costs into variable costs: A competitive analysis

Yunchuan Liu<sup>a</sup>, Rajeev K. Tyagi<sup>b,\*</sup><sup>a</sup> College of Business, University of Illinois, Urbana Champaign, Champaign, IL, 61820, USA<sup>b</sup> Paul Merage School of Business, University of California, Irvine, Irvine, CA 92697, USA

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## ABSTRACT

Outsourcing of production, services, and various economic activities is a pervasive phenomenon across industries. One of the key economic benefits of this popular practice, as mentioned by its sellers and buyers, is that it allows the outsourcing firm to reduce its fixed costs such as expenditures on equipment, information technology, fixed salaries of employees, etc., and convert those into a variable cost in the form of the purchase price that the outsourcing firm then pays the outside industry. This paper examines the strategic implications of this role of outsourcing in an oligopolistic setting. We show how these strategic considerations imply that, even absent any cost savings from outsourcing, competing firms can find it profitable to outsource. Furthermore, in such a setting, one firm may outsource while the ex-ante similar competing firm may not outsource. We also examine how consumer and social welfare are adversely affected when outsourcing plays this fixed-cost-to-variable-cost conversion role in an oligopolistic setting.

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## 1. Introduction

Outsourcing of production, services, and various economic activities is a pervasive phenomenon across industries. A key economic benefit of outsourcing mentioned prominently by both sellers and buyers of this practice is that it allows the outsourcing firm to reduce its fixed cost and convert it into variable cost (Kakabadse & Kakabadse, 2000; Kelleher, 1990; Kremic, Tukul, & Rom, 2006; Razzaque & Sheng, 1998). Specifically, the outsourcing firm can avoid a significant part of the fixed costs of facilities, equipment, information technology, rents, personnel salary, insurance, and logistic and overhead expenses. These reductions in fixed costs are replaced with increases in variable costs in the form of purchasing prices that the outsourcing firm must pay the outside industry.

This benefit of outsourcing is advertised prominently by outsourcing consultancy houses, and highlighted in industry reports and formal surveys of outsourcing firms. The Accenture website mentions “migrate fixed cost to variable cost” as an advantage of offshoring<sup>1</sup>; HCL BPO highlights “convert fixed cost to variable cost business,” as the advantage of outsourcing<sup>2</sup>; the website of Emineo Partners, a consultancy house for outsourcing, says “conversion of fixed cost to variable cost” is a key benefit to its clients<sup>3</sup>; and Cap Gemini gives “convert fixed costs to variable costs” as the first benefit of their internal audit service (Capgemini Internal Audit Services Survey, 2009). In the *Strategic Outsourcing Survey 2004*, conducted jointly by CAPS Research

\* Corresponding author.

E-mail addresses: [liuf@illinois.edu](mailto:liuf@illinois.edu) (Y. Liu), [rktyagi@uci.edu](mailto:rktyagi@uci.edu) (R.K. Tyagi).<sup>1</sup> <https://microsite.accenture.com/concacia/Pages/default.aspx>.<sup>2</sup> <http://www.hclbpo.com/pdf/brochures/bfs/Mortgage%20Services.pdf>.<sup>3</sup> <http://www.emineopartners.sk/en/outsourcing.php>.

and A.T. Kearney, out of 165 companies surveyed from across 24 global industries, 58% of respondents cited “turn fixed costs into variable costs” as one of the key reasons for outsourcing (Monczka, Markham, Carter, Blascovich, & Slaughter, 2005).

Such surveys and industry reports also mention which specific fixed costs get converted to variable costs by outsourcing. A report on outsourcing by Deloitte and Touche (2014) calls fixed costs on Information Technology, Human Resources, Finance and Accounting, and Procurement as the big four types of fixed costs being changed to variable costs by outsourcing. A report by Ernst and Young (2013) mentions software and computer systems outsourced to cloud services as an example. In a survey by *Purchasing Magazine*, more than 50% of outsourcing firms surveyed cited cutting the fixed costs of transportation/distribution costs, freeing up or reducing staff, focusing on the core business and cutting internal administrative costs as major reasons for outsourcing (Razzaque & Sheng, 1998). Small Business Authority (2012) and Regus (2010) describe fixed costs on marketing staff, designers, and office space as being converted to variable costs; similarly, ADP Total Source (2012) mentions fixed costs on HR, payroll, and compliance; and Berry-Wehmiller International Resources mentions fixed costs involved in engineering services as examples of fixed cost being converted to variable cost by outsourcing (Barry-Wehmiller International Resources, 2012). Yourvoice Outsourcing Company, which offers both front office and back office services (e.g., Document Administration, Analytics, Finance, Accounting, Customer Care, Customer Surveys, Consumer Research, and Quality Audits), mentions “These services are offered on a fee-for-service basis, which helps your business become more flexible by transforming fixed costs into variable costs (Outsourcing—Your Voice CMR, 2013).” Tabuchi (2011) and Sutton (2012) describe how Sony saved fixed costs by closing production facilities for LCD screens and outsourcing them, while its competitor Samsung maintains more such production facilities to produce in-house.

In spite of the immense popularity of both the outsourcing phenomenon and of the idea that it converts a firm's fixed cost into variable cost, it is surprising that little rigorous academic work has been done to analyze the economic implications of this key feature of outsourcing. This paper aims to fill this void, and formally examines the effects of this role of production/service outsourcing on outsourcing firms and customers in a competitive setting.

Our analysis highlights the following key economic effects and results. First, we show that outsourcing, when it plays the fixed-cost-to-variable-cost conversion role, can benefit competing firms by allowing them to sustain higher prices. Intuitively, when firms produce the products or service in-house, their fixed costs rationally become sunk costs when they decide their prices and hence price competition is intense. On the other hand, when they outsource and then compete on prices, then the conversion of fixed costs into variable costs implies that they compete with reduced fixed costs and higher variable costs, allowing them to sustain higher prices. We show that this implies that firms may outsource even when production is more costly for the outside industry than for the outsourcing firms. In other words, competing firms can engage in outsourcing even when it does not lead to any cost savings. Of course, any cost savings provided by outsourcing only adds to this beneficial effect.

Second, we show that besides the above-mentioned beneficial price increase effect, outsourcing by a firm, if done unilaterally, creates a detrimental competitive cost disadvantage for it and a beneficial competitive cost advantage for its competitor. Specifically, when only one firm outsources to an outside industry, its variable cost will be higher than the variable cost of the competing firm which chooses in-house production. This higher variable cost leads to a disadvantage for the outsourcing firm in its price competition with the competing firm.

We show how, depending on the relative magnitudes of the above-described competitive cost disadvantage effect and the beneficial price increase effect, we can have different outsourcing equilibria in a market: an equilibrium where both competing firms do not outsource; an equilibrium where both competing firms outsource; or even an asymmetric equilibrium where one firm outsources and the competing firm does not. This last possible outcome implies that the optimal outsourcing strategy can be asymmetric even for symmetric firms. Intuitively, when a firm chooses to outsource, it benefits the competing firm since both the competitive cost disadvantage effect and the beneficial price increase effect favor the competing firm. This increases the profit that the competing firm gets from not outsourcing, and hence effectively reduces the additional beneficial price increase benefit that this competing firm will get if it also chooses to engage in outsourcing. Therefore, we can have an equilibrium where ex-ante symmetric firms can become ex-post asymmetric in that only one firm chooses to outsource.<sup>4</sup>

Finally, we also show how consumer welfare can be adversely affected when outsourcing plays the fixed-cost-to-variable-cost conversion role examined in this paper. In this framework, the fixed costs converted to variable costs are shifted to the shoulder of consumers in the form of increased prices. Although firms may benefit from the beneficial price increase effect of outsourcing, this benefit does not always offset the loss of consumer welfare in our framework, and hence social welfare can also reduce. Of course, if outsourcing also leads to cost savings, i.e., the outside industry can produce at a lesser cost than the outsourcing firms, then that can generate a beneficial effect on consumer and social welfare, mitigating or even overwhelming the reduction in consumer and social welfare caused by the strategic effects of outsourcing discussed above.

### 1.1. Relationship to literature

In addition to the papers cited earlier, our paper is also related to the following streams of work in the marketing, strategy, and operations management literatures.

<sup>4</sup> One can see examples of industries where among approximately similar competing firms, some choose outsourcing and others do not. For example, Apple does not outsource its call centers much, while other main PC manufacturers, such as Dell and HP, outsource heavily (Mourdoukoutas, 2013). In the LCD television market, Samsung produces most of its LCD in-house in expensive factories, while other competitors such as Sharp and Sony outsource this production to a much larger extent (Tabuchi, 2011). Similarly, Intel produces most of its processors in its own factories while AMD outsources much more of its production (Franco, 2015).

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